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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,502	08/24/2001	Andreas Mobius	CEDE 2067	3314

321 7590 11/12/2003

SENNIGER POWERS LEAVITT AND ROEDEL  
ONE METROPOLITAN SQUARE  
16TH FLOOR  
ST LOUIS, MO 63102

EXAMINER

DRODGE, JOSEPH W

ART UNIT PAPER NUMBER

1723

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

Application No.

09/939,502

Applicant(s)

MOBIUS ET AL.

Examiner

Joseph W. Drodge

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1001.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 9-22 and 24-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Eisenmann patent 4,357,220 which incorporates the disclosure of Wallace patent 3,454,490 by reference (Eisenmann column 4, line 67-column 5, line 2). Eisenmann/Wallace discloses a system for purifying electrolyte containing rinse solution by continuous circulation of solution between rinse container 14 and first compartment of "Donnan dialysis unit" 20, that is separated from a second compartment by a permeable membrane separating unit. Purifying, stripping solution is circulated between stripping solution container 22 and such second compartment (column 4, line 51-column 5, line 33 of Eisenmann). The separation is governed by control of a concentration gradient of level of electrolyte contaminant between the compartments of the dialysis unit (column 5, line 61-column 6, line 13 and column 6, lines 22-40 of Eisenmann). Also Wallace in column 2, lines 60-65 disclose control of concentration gradient across a Donnan dialysis unit.

Regarding claims 2 and 3, see Eisenmann column 5, line 67-column 6, line 1 and column 6, lines 4-8 of Eisenmann and column 2, lines 60-65 of Wallace concerning gradient set points and maintenance.

Regarding claims 21-23, see Eisenmann column 5, line 20 for hollow fiber membranes.

Regarding columns 9-13, 17, 18 and 29-30, the recirculation circuits of electrolyte solution and purifying stripping solution being independent is evident from column 4, lines 51-55 and column 6, lines 9-14 of Eisenmann.

Regarding claims 5, 7, 8, 34 and 35, see column 4, lines 15-16 of Eisenmann and column 2, lines 59-60 of Wallace for removing of contaminants from the recirculated solutions by means such as filters.

Regarding claims 4 and 36, the partial replenishment of stripping solution discussed at column 6, line 10 of Eisenmann constitutes addition of dilution fluid.

Regarding claim 13 see column 2, lines 30-33 of Wallace for countercurrent flow.

Regarding claims 14, 15, 19 and 31-33, controlled variation of intensive variables such as temperature and membrane thickness is disclosed at column 6, lines 1-7 of Eisenmann.

Regarding claim 26, see Wallace at column 3, lines 56-60 for use of non-corroding inert materials.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisenmann incorporating the specification of Wallace in view of Tsai et al patent 5,320,816.

Claims 6 and 8 differ in requiring particular separating units of types including chemical binding means and adsorption means. Such means are taught in Tsai et al at column 5, lines 12-17 and 46-52. It would have been obvious to one of ordinary skill in the art to have incorporated chemical binding and adsorption means for purifying the separating stripping solution of Eisenmann, as taught by Tsai et al, so as to remove metal salts.

Claim 23 requires the permeable separating unit separating electrolyte solution from purifying solution to encompass hollow fiber membrane bundles. Tsai et al suggest such membrane bundles in column 9, lines 31-35. It would have been also obvious to one of ordinary skill in the art to have utilized the membrane bundles of Tsai et al as the permeable separating unit of Eisenmann, to take advantage of hollow fiber membrane bundle properties of large surface area and compactness.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Olsen et al patent 5,562,822 is of interest with regard to recirculating systems for purifying electrolyte solutions by membrane dialysis (see especially column 2, lines 22-42). Boeteng patent 5,064,538 (especially column 5, lines 19-35) is similarly of interest.

Any inquiry concerning this communication or other matters regarding prosecution of this application should be directed to Examiner Joseph Drodge at (703) 308-0403 Mondays through Fridays between 8:30 and 4:45( 571-272-1140 after December 8, 2003). The Fax number for the Examining Group is (703) 872-9306.

JWD

November 6, 2003

  
**JOSEPH DRODGE**  
**PRIMARY EXAMINER**